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Pseudo-bimodal community detection in Twitter-based networks

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Abstract

© 2016 IEEE.We present a novel approach to clustering Twitter users and characterizing their preferences (political or otherwise) based on the features of communication networks extracted from their tweets. We make the assumption that central users in the network, the so-called 'top', or 'power' users, set the agenda, while other, 'regular' users often retweet and/or mention their tweets, and behavior towards 'top' users differs from the behaviour of 'regular' users towards each other. We show that network clustering on Twitter can be observed more distinctively on unimodal projections of specially created bimodal networks (bipartite graphs), where top users in the networks are artificially separated into a second part according to node centrality measures. We evaluate our approach on Twitter-based datasets of mentions and retweets related to Russian political protests and a benchmark English-language Twitter dataset with distinctly polarized clusters; we compare various centrality measures and show that our algorithm yields high modularity in the resulting community structure.

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